Remarks

I. Status of the Claims

Claims 1, 2, 6, 8, and 9 are currently pending in this application. Claims 1 and 6 have been amended, claims 3, 4, 5, and 7 have been canceled, and new claims 8 and 9 have been added. No new matter has been introduced by this Amendment.

II. Claim Objections

The Examiner has objected to claims 1, 3, 4, and 7. Applicants traverse these objections but have corrected the typographical error and have re-written claims 3 and 4 (see new claim 8) and claim 7 (see new claim 9) in independent form as suggested by the Examiner. Accordingly, Applicants respectfully request withdrawal of all claim objections.

III. Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1, 3, 6, and 7 have been rejected under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. *See* 6/1/2006 Office Action, at 2. Applicants respectfully disagree with and traverse these rejections for at least the following reasons.

Claim 1 has been rejected as indefinite for the recitation of "doping different alkaline-earth metals to said A." In particular, the Examiner asks

whether "the doping of the alkaline-earth metals would change the formula of the general form of materials for cathode." *See* 6/1/2006 Office Action, at 2.

Claim 1 has been amended to provide "doping of A-side by alkaline-earth metals." Support for this amendment can be found in the as-filed Abstract, which provides that "[c]athode dope different alkaline-earth metal on A side to [convert] partly copper (Cu) to trivalence copper ion... ." Additional support can be found, for example, at pages 7-8 of the as-filed specification where it is provided that "the materials have a general form as $Ln_{1-x}A_xCu_{1-y}B_yO_{2.5\pm\delta}$, wherein Ln is a lanthanide ion, A is alkaline-earth metal, B is metal." Further support can be found at page 9 of the as-filed specification, for example, which describes an example with "$La_{1-x}Sr_xCuO_{2.5\pm\delta}$ according to the present invention."

Claim 3 has been rejected for alleged lack of antecedent basis for the term "lanthanum (La)." *See* 6/1/2006 Office Action, at 2. Claim 3 has been canceled and new claim 8 has been added, which incorporates the subject matter of previously pending claim 3 (as well as previously pending claim 4). New claim 8 recites "Ln is lanthanide selected from the group consisting of lanthanum (La)... ." Support for this amendment can be found in claim 3 as originally filed and, for example, at page 10 of the as-filed specification where it is provided that "Ln is lanthanide ion and is selected from the group consisting of lanthanum (La)... ."

Claim 6 has been rejected as allegedly indefinite, in particular, for the reason that it is allegedly "unclear what operating conditions are being referred to in the claim." *See* 6/1/2006 Office Action, at 2. Applicants have amended claim

6, which now provides "solid oxide fuel cells(SOFCs) operating at a temperature in a range of 400-800 degrees Celsius."

Claim 7 has been rejected for allegedly lacking antecedent basis for the term "the $ABO_{2.5\pm\delta}$" in lines 1-2. Applicants have canceled claim 7 and added new claim 9, which incorporates the subject matter of previously pending claim 7. New claim 9 provides "materials for cathode in solid oxide fuel cells(SOFCs) having the general form $ABO_{2.5\pm\delta}$... ." Support for this amendment can be found in the specification as-filed at page 10.

Applicants have addressed the Examiner's concerns relating to the rejections under 35 U.S.C. § 112, second paragraph, by making the appropriate claim amendments. Accordingly, Applicants respectfully request withdrawal of all 112, second paragraph, rejections.

IV. Rejections Under 35 U.S.C. § 102 and 103

Claims 1-7 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent Application Publication No. 2002/0015877 to Tao ("*Tao*") or, in the alternative, rejected under 35 U.S.C. § 103(a) as obvious over *Tao*. Further, claims 1-7 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,679,481 to Takanishi et al. ("*Takanishi*") or, in the alternative, rejected under 35 U.S.C. § 103(a) as obvious over *Takanishi*. Applicants respectfully disagree with these rejections and traverse for at least the following reasons.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art

reference." *See* M.P.E.P. § 2131. Additionally, to establish a *prima facie* case of obviousness, *inter alia*, "the prior art reference (or references when combined) must teach or suggest all the claim limitations." *See* M.P.E.P. § 2143. With respect to *Tao* and *Takanishi*, the Examiner has not shown that all of Applicants' claim elements are found in either of the references cited.

With respect to the § 102 and 103 rejections over *Tao*, Applicants' as-amended claim 1 and new independent claims 8 and 9 include that "B is metal selected from the group consisting of cobalt(Co), iron(Fe), nickel(Ni), zinc (Zn), manganese (Mn), aluminum(Al), vanadium(V), iridium(Ir), molybdenum (Mo), palladium (Pd), platinum(Pt), magnesium (Mg), ruthenium(Ru), rhodium(Rh), chromium(Cr) and zirconium (Zr)... ." For at least this reason, the Examiner has not shown that *Tao* teaches this element of Applicants' claims.

With respect to the § 102 and 103 rejections over *Takanishi*, as pointed out by the Examiner, this reference teaches "a cathode material expressed by the general formula $Li_{1-x-a}A_xNi_{1-Y-b}B_YO_2$" (*see* Office Action, at 5), however, this compound does not teach all elements of Applicants' claims. The Examiner has not shown that *Takanishi* teaches all elements of Applicants' claims, let alone Applicants' claimed $Ln_{1-x}A_xCu_{1-y}B_yO_{2.5\pm\delta}$.

Further, with respect to the § 103 rejections over both *Tao* and *Takanishi*, the occupation of the copper ions in the B site of Applicants' claimed compounds is a factor for the stability of these structures. The large amount of oxygen vacancies in Applicants' claimed compounds makes the claimed material more suitable for application as cathode material for solid oxide fuel cells (SOFCs), for

example, for intermediate temperature in solid oxide fuel cells (IT-SOFCs). *See, e.g.*, As-Filed Specification, at 7-9. Even further, the claimed materials can decrease the fabricating temperature of the solid oxide fuel cell. *See, e.g.*, As-Filed Specification, at 10. The Examiner has not shown that *Tao* nor *Takanishi* teach all elements of Applicants' claims, nor Applicants' advantages in stability.

Accordingly, as the Examiner has not established that the claims are anticipated or obvious over either of the cited references, Applicants respectfully request withdrawal of all rejections under 35 U.S.C. § 102 and 103.

V. Conclusion

In view of the foregoing Amendment and Remarks, Applicants submit that this application is in condition for allowance. Applicants, therefore, request entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Respectfully submitted,

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